

Scanning the Past

John V. L. Hogan (1890–1960)

The July 1913 issue of the first volume of the PROCEEDINGS OF THE INSTITUTE OF RADIO ENGINEERS (IRE) included a paper on the heterodyne receiving system by John V. L. Hogan, at the time a research engineer with the National Electric Signaling Company (NESCO). Along with Robert H. Marriott and Alfred N. Goldsmith, Hogan had been instrumental in founding the IRE the previous year, and he later served as IRE president in 1920.

In his paper, Hogan discussed the results of recent radio tests between the U.S. Navy's transmitting station in Arlington, Virginia, and the *USS Salem*, a Navy cruiser. He stated that these tests had marked the public debut of the heterodyne system, an invention which he credited to Reginald A. Fessenden. Hogan used graphs to show how two waves of different frequency could combine to produce a periodic variation with a beat frequency equal to the difference in the frequencies of the component waves. He included circuit diagrams of various heterodyne receivers where a signal produced by a local radio-frequency source was mixed with a received signal. He pointed out that the heterodyne process could produce a much stronger audio-frequency signal than a receiver which did not use a local source, such as a radio alternator or arc converter.

Hogan stated that the heterodyne principle in radio was covered by a patent issued to Fessenden in 1902 and that it was a "fundamental invention" of greater significance than subsequent improvements made by others.

In an IRE paper on the heterodyne receiver published in September 1915, Hogan reported that the development of the de Forest audion into a "singing relay" had further enhanced the value of the heterodyne receiver. He praised Edwin H. Armstrong's contribution to regenerative oscillators, which provided an inexpensive local source for

heterodyne receivers.

Hogan was born in Philadelphia, Pennsylvania, and constructed his first wireless station in 1902. He worked as a laboratory assistant to Lee de Forest for a time and participated in the first public demonstration of the audion (triode) in 1907. Hogan enrolled at Yale University in 1908 but dropped out without a degree to work for NESCO and Reginald Fessenden. Hogan remained with NESCO and its successor, the International Radio Telegraph Company, until 1921. In 1912, he received a patent on single-control tuning, which he assigned to NESCO. He later regained control of the patent and received royalties from numerous manufacturers of radio broadcast receivers during the 1920's. In 1921, he established a consulting engineering practice with clients that included Westinghouse Electric Company and commercial broadcasting stations.

Beginning in 1928, Hogan turned his attention to radio facsimile and television using his own experimental station, W2XR, to try out inventions. Fond of classical music, he was impressed by the fidelity achieved by Armstrong's frequency-modulation system, introduced in the mid 1930's. Hogan converted his station to FM and began broadcasting in New York City in 1936 (WQXR). He sold the station to the *New York Times* in 1944. During World War II, he served as special assistant to Vannevar Bush, director of the Office of Scientific Research and Development. After the war, Hogan resumed work on facsimile transmission systems. He died December 29, 1960, in Forest Hills, New York.

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